

**FIG. 1A**

**FIG. 1B**

**FIG. 1C**

**FIG. 1D**

**FIG. 1E**

**FIG. 1F**

**FIG. 1**

1 GGATCCTGGT CGCGAGCGCG CCGCCCAGCC ACCTGCCGGC GCGCCCCGCC

GGGACCGCTC GAGGACGCCT CGCGAAGGCT CTAGGGGCTG TATCTTCAAG

101 AGTCTACGCC CCTTTGTTGC AGTCACAAA TTTCCGTGCT AGCTTCATGC  
"-35"

TATCACGCC CAGACGAGGA AGATTACCG *phaE* → TGAAACGATAC GGCCAACAAG  
S/D V N D T A N K

201 ACCAGCGACT GGCTGGACAT CCAACGCAAG TACTGGGAGA CCTGGTCGGA  
T S D W L D I Q R K Y W E T W S E

GCTCGGCCGC AAGACCTTGG GTCTGGAGAA GACCCCGGCC AATCCTTGGG  
L G R K T L G L E K T P A N P W A

301 CCGGCGCCCT CGATCATTGG TGGCAGACGG TCTCGCCCGC CGCCCCAAC  
G A L D H W W Q T V S P A A P N

GACCTGGTTC GCGACTTCAT GGAGAAGCTC GCCGAGCAGG GCAAGGCCTT  
D L V R D F M E K L A E Q G K A F

401 CTTCGGCCTC ACCGACTACT TCACGAAGGG CCTCGGCCGC AGTAGCGGTA  
F G L T D Y F T K G L G G S S G T

CGCAGGGCTG GGACACCCTC TCGAAGACCA TCGACGACAT GCAAAAGGCC  
Q G W D T L S K T I D D M Q K A

FIG. 1A

501 TTGCGCCAGCG GCCGGATCGA AGGCGACGAG ACCTTCCGCC GCCTGATGGC  
     F A S G R I E G D E T F R R L M A  
  
 CTTCTGGGAG ATGCCGCTCG ACAACTGGCA GCGCACCATG TCCTCGCTGT  
     F W E M P L D N W Q R T M S S L S  
  
 601 CCCCGGTGCC CGGCGACCTG CTGCGCAACA TGCCGCACGA CCAAGTCAGG  
     P V P G D L L R N M P H D Q V R  
  
 GACAGCGTCG ACCGCATCCT CTCGGCACCC GGGCTCGGCT ACACGCGCGA  
     D S V D R I L S A P G L G Y T R E  
  
 701 GGAGCAGGCC CGCTACCAGG ATCTGATCCG CCGCTCGCTG GAGTACCAAGT  
     E Q A R Y Q D L I R R S L E Y Q S  
  
 CGGCCCTGAA CGAATACAAC GGCTTCTTCG GCCAGCTCGG TGTCAAGTCC  
     A L N E Y N G F F G Q L G V K S  
  
 801 CTCGAGCGGA TGCGCGCCTT CCTGCAGGGA CAGGCCGAGA AGGGCGTCGC  
     L E R M R A F L Q G Q A E K G V A  
  
 CATCGAGTCG GCGCGCACCC TCTACGACGC CTGGGTCGGC TGCTGCGAAG  
     I E S A R T L Y D A W V G C C E E  
  
 901 AGGTCTATGC CGAGGAGGTC AGCTCCGCCG ACTACGCGCA CATCCACGGC  
     V Y A E E V S S A D Y A H I H G  
  
 CGCCTCGTCA ACGCCCAGAT GGCCCTCAAG CAGCGCATGT CGACCATGGT  
     R L V N A Q M A L K Q R M S T M V

**FIG. 1B**

1001 CGACGAGGTC CTCGGCGCGA TGCCGCTGCC GACCCGCAGC GAGCTGCGCA  
     D E V L G A M P L P T R S E L R T  
  
     CGCTCCAGGA TCGGCTCCAG GAGTCGCGCG GCGAGGGCAA GCGCCAGCGC  
     L Q D R L Q E S R G E G K R Q R  
  
 1101 CAAGAGATCG AGACGCTGAA GCAGCAGGTC GCGGCCTTGG CCGGCAGCGC  
     Q E I E T L K R Q V A A L A G G A  
  
     CCAGCCCCGCG CCCCAGGCCT CCGCCCAGCC CAGCACCCGG CCCGCGCCGG  
     Q P A P Q A S A Q P S T R P A P A  
  
 1201 CGACGGCCCC GGCGCGAGC GCGGCAGCCA AGCGCAGCAC CACGACCCGC  
     T A P A A S A A P K R S T T T R  
  
     CGCAAGACCA CCAAGCCCAC CACCGGCCAG TGATGTGGC CGCCCGTCCA  
     R K T T K P T T G Q \*  
  
     1301 TCGCCACCAG GAGAGAGTGC CGTGTCCCCA TTCCCGATCG ACATCCGGCC  
         S/D                   V S P F P I D I R P  
  
         CGACAAGCTG ACCGAGGAGA TGCTGGAGTA CAGCCGCAAG CTCGGCGAGG  
         D K L T E E M L E Y S R K L G E G  
  
 1401 GTATGCAGAA CCTGCTCAAG GCCGACCAGA TCGACACAGG CGTCACCCCC  
     M Q N L L K A D Q I D T G V T P  
  
     AAGGACGTCG TCCACCGCGA GGACAAGCTG GTCCTCTACC GCTACCGGCG  
     K D V V H R E D K L V L Y R Y R R

**FIG. 1C**

1501 CCCGGCGCAG GTGGCGACCC AGACGATCCC GCTGCTGATC GTCTACGCC  
P A Q V A T Q T I P L L I V Y A L  
  
TCGTCAATCG GCCCTACATG ACCGACATCC AGGAGGATCG CTCGACGATC  
V N R P Y M T D I Q E D R S T I  
  
1601 AAGGGCCTGC TCGCCACCGG TCAGGACGTC TATCTGATCG ACTGGGGCTA  
K G L L A T G Q D V Y L I D W G Y  
  
CCCGGATCAG GCCGACCGGG CGCTGACCCT CGATGACTAC ATCAACGGCT  
P D Q A D R A L T L D D Y I N G Y  
  
1701 ACATCGACCG CTGCGTCGAC TACCTGCGCG AGACCCACGG CGTCGACCAAG  
I D R C V D Y L R E T H G V D Q  
  
GTCAACCTGC TCGGGATCTG CCAGGGCGGG GCCTTCAGCC TCTGCTACAC  
V N L L G I C Q G G A F S L C Y T  
  
1801 GGCCCTGCAC TCCGAGAAGG TCAAAAACCT CGTCACCATG GTCACGCCGG  
A L H S E K V K N L V T M V T P V  
  
TCGACTTCCA GACCCCGGGC AACCTGCTCT CGGCCTGGGT CCAGAACGTC  
D F Q T P G N L L S A W V Q N V  
  
1901 GACGTCGACC TGGCCGTCGA CACCATGGGC AACATCCGG GCGAACTGCT  
D V D L A V D T M G N I P G E L L  
  
CAACTGGACC TTCCTGTCGC TCAAGCCCTT CAGCCTGACC GGCCAGAAGT  
N W T F L S L K P F S L T G Q K Y

FIG. 1D

2001 ACGTCAACAT GGTCGACCTG CTCGACGACG AGGACAAGGT CAAGAACTTC  
V N M V D L L D D E D K V K N F

CTGCGGATGG AGAAGTGGAT CTTCGACAGC CCGGACCAGG CCGGCAGAC  
L R M E K W I F D S P D Q A G E T

2101 CTTCCGCCAG TTCATCAAGG ACTTCTACCA GCGAACGGC TTCACTAACG  
F R Q F I K D F Y Q R N G F I N G

GCGGCGTCCT GATCGGCGAT CAGGAGGTG ACCTGCGCAA CATCCGCTGC  
G V L I G D Q E V D L R N I R C

2201 CCGGTCTGA ACATCTACCC GATGCAGGAC CACCTGGTGC CGCCGGATGC  
P V L N I Y P M Q D H L V P P D A

CTCCAAGGCC CTCGCGGGAC TGACCTCCAG CGAGGACTAC ACGGAGCTCG  
S K A L A G L T S S E D Y T E L A

2301 CCTTCCCCGG CGGGCACATC GGCATCTACG TCAGCGGCAA GGCGCAGGAA  
F P G G H I G I Y V S G K A Q E

GGAGTCACCC CGGCGATCGG CCGCTGGCTG AACGAACGCG GCTGAGCCGG  
G V T P A I G R W L N E R G \*

2401 GTCGACCCAC CCGCTCGACG GGCGCGGCCG GCGGCATCGA AGGCCGCCGG  
CCGGCGCCCA TGAGCCATCC GCGCCGCTGG CGCCCGCCCC CCGACCTTCG

FIG. 1E

2501 CCGCCGCACC CGCATCGCCC CCGCGGCTGG CGTACAATGA CGGTCTTCGC

GAGCGAGCCC CGCATCGTCA ACGGAGGCTG CATGGGCGCC GACCACCAAC

2601 TGCTGGCCGC GTACGACGCG CTGGCCGAGA CCTACGACGC CCACCGCGGC

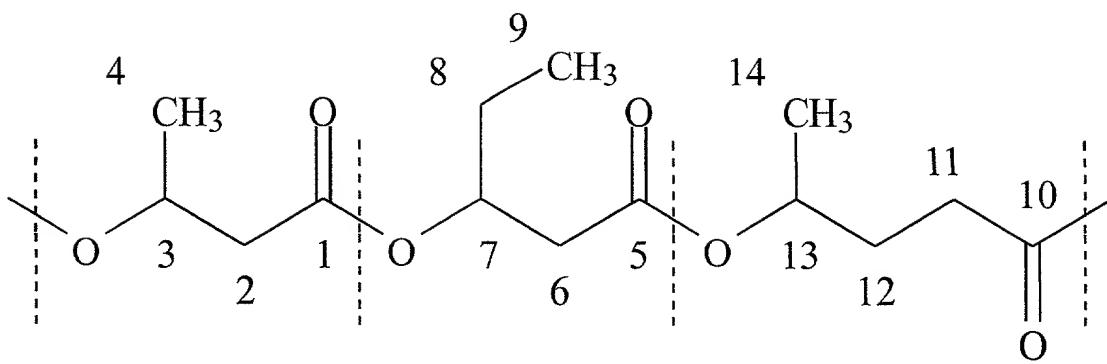
CTCTTCGACA TGCGCGCCGT GCTCGAGGAC ATCTTCGCC GCCTGCCGGC

2701 CTGCGGCACC CTCCTCGACC TCGGCTGCGG CGCCGGGGAG CCGTGCGCGC

GCGCCTTCCT CGACCGCGGC TGGCGGGTGA CGGGGGTGA CTTCTGCCCG

2801 GCCATGCTCG CCCTCGCGGC GCGCTACGTC CCCGAGATGG AGCGGATCC

FIG. 1F



3HB

3HV

4HV

FIG. 2

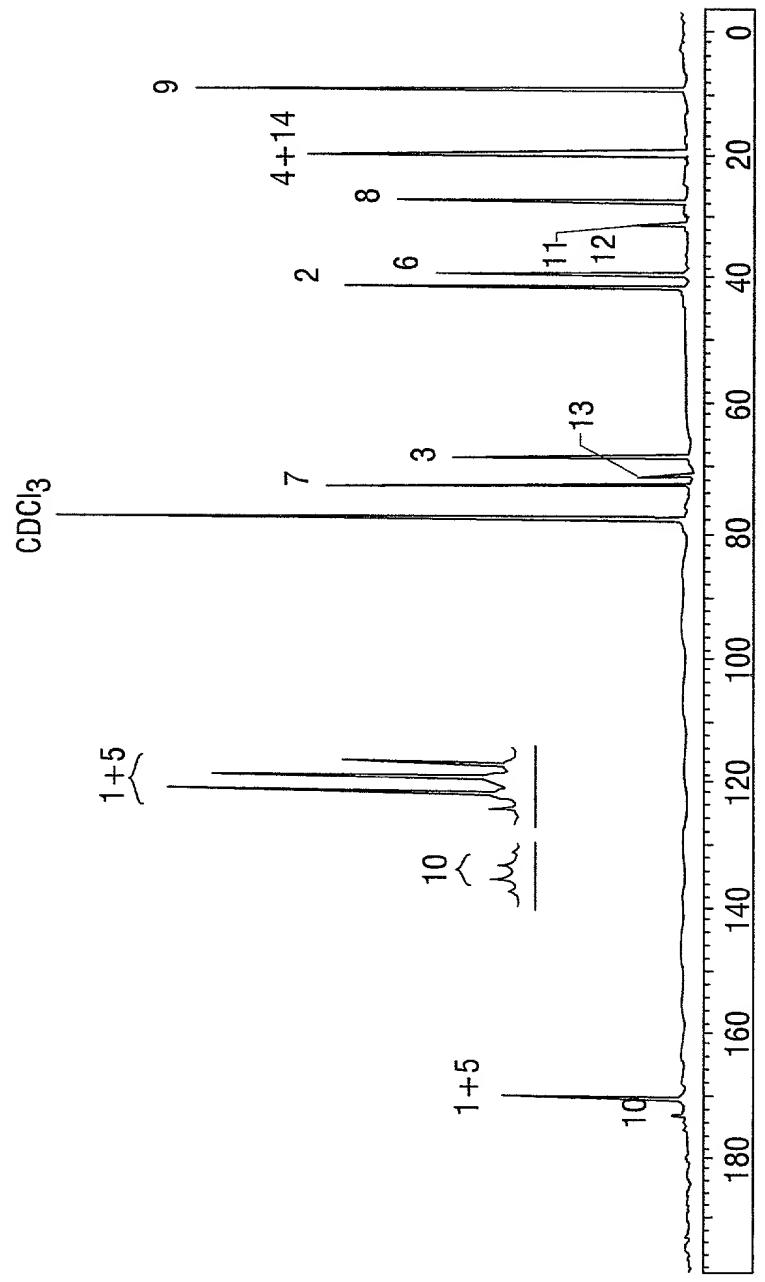


FIG. 3

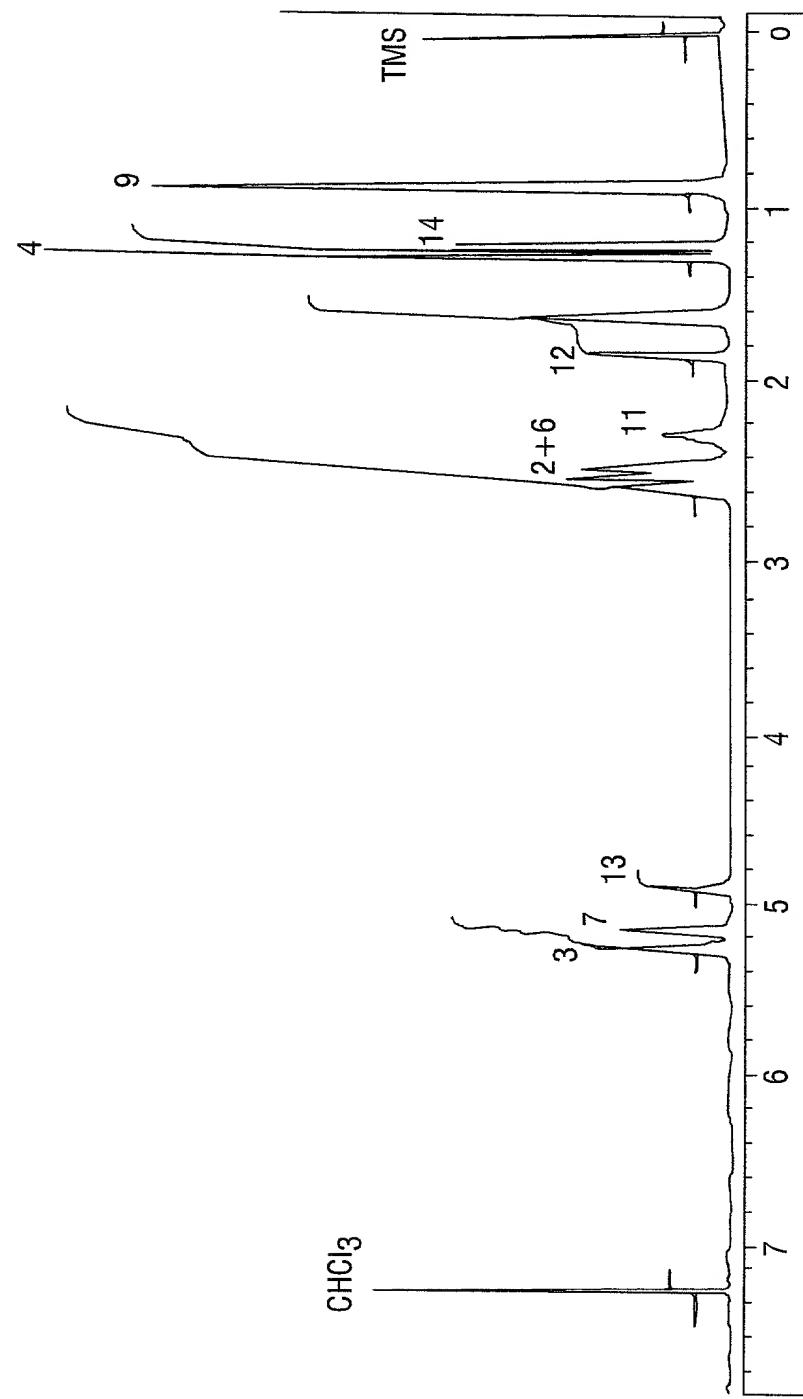


FIG. 4

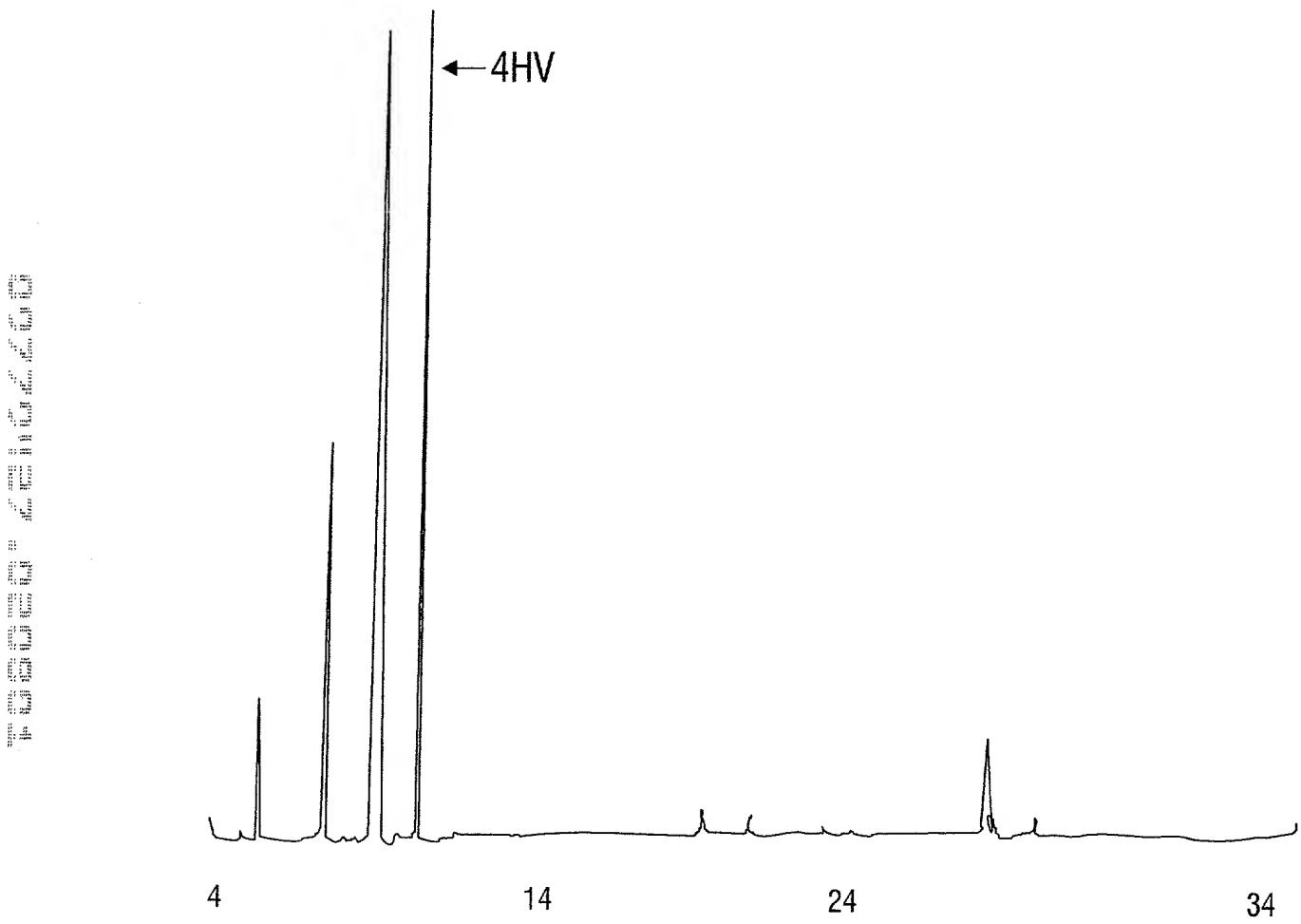


FIG. 5

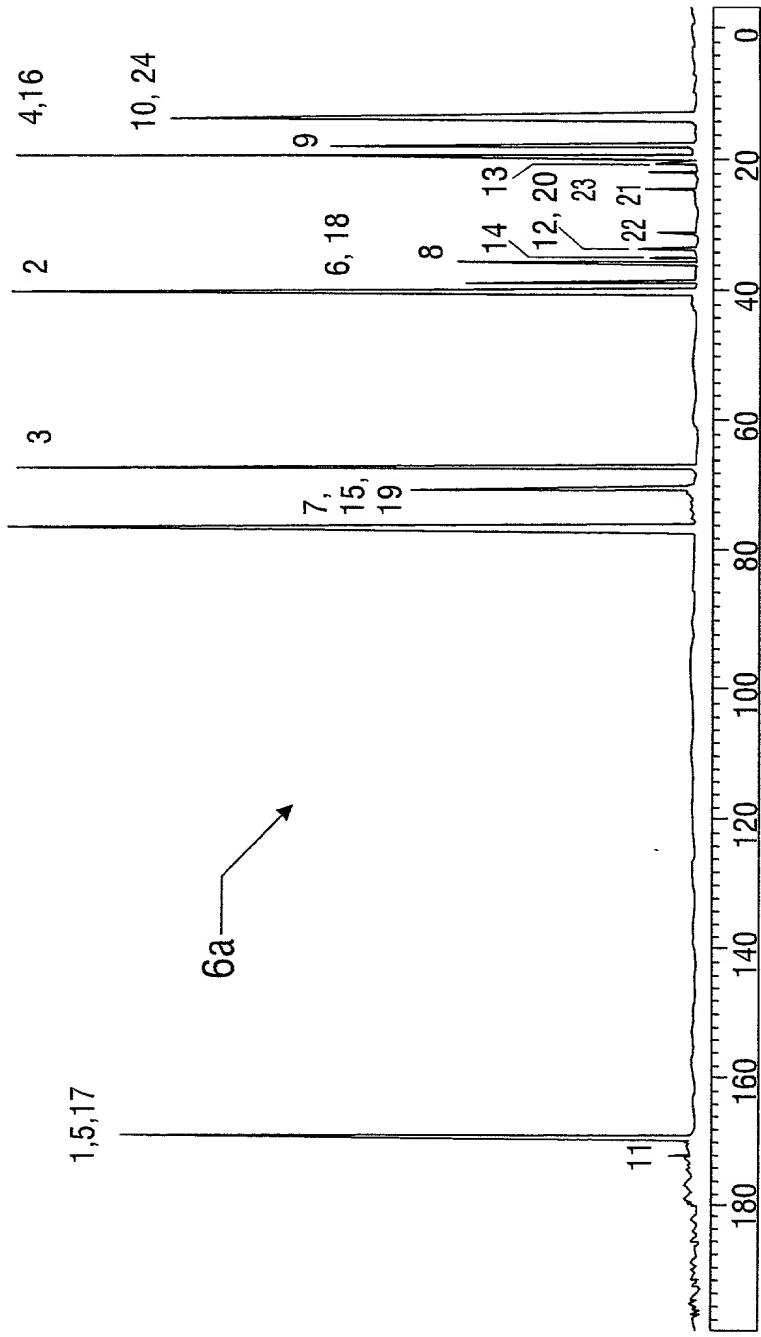


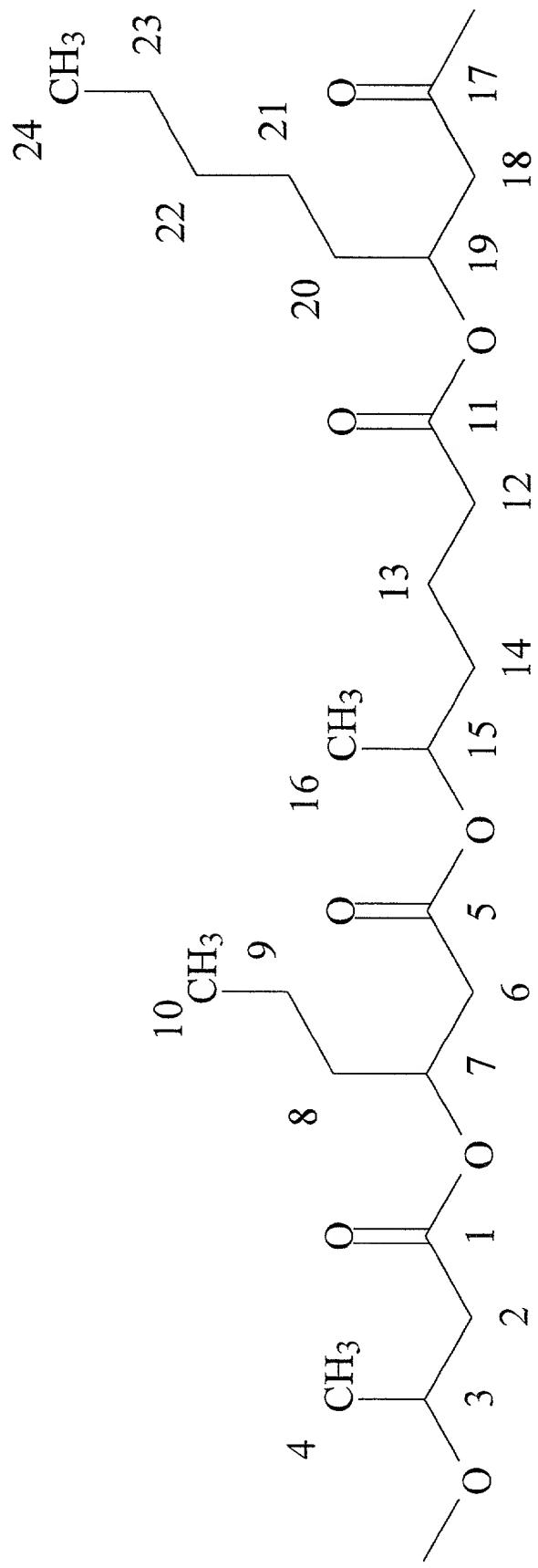
FIG. 6

3HO

5HHx

FIG. 6A

3HB            3HHx



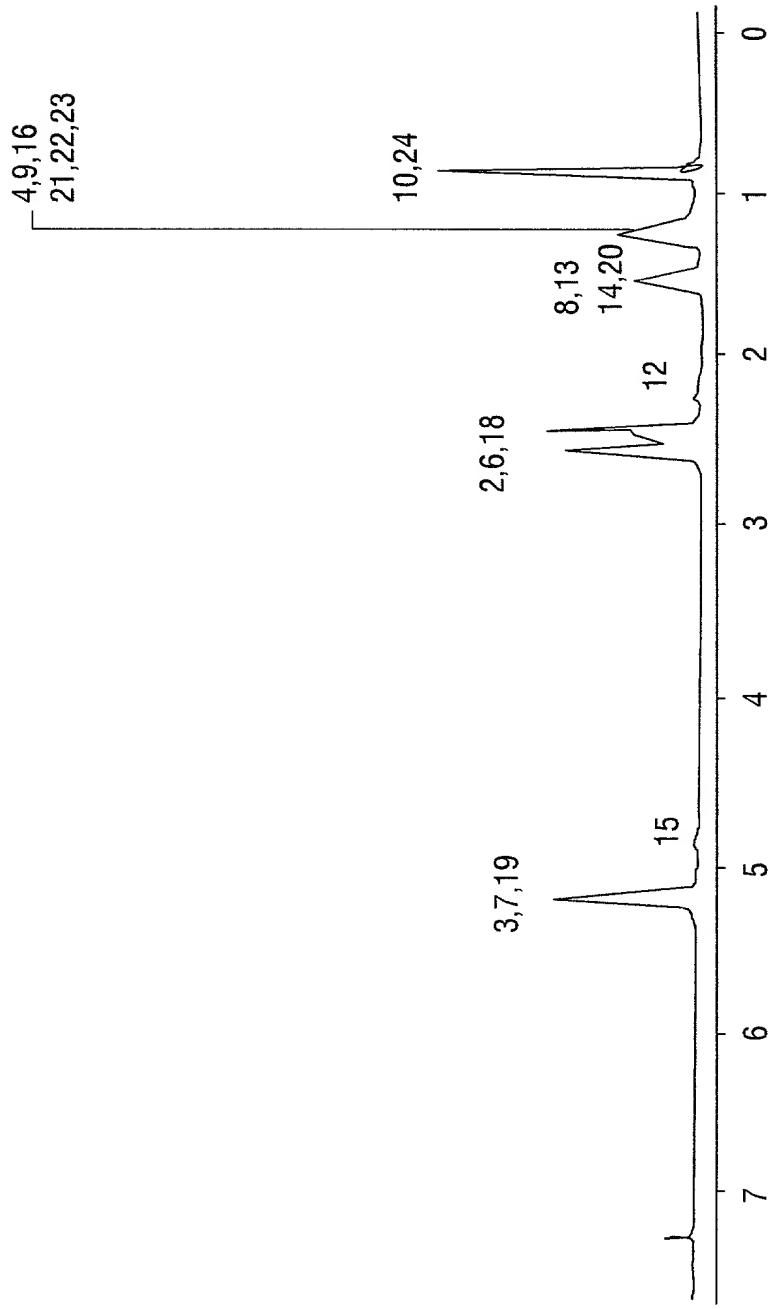


FIG. 7

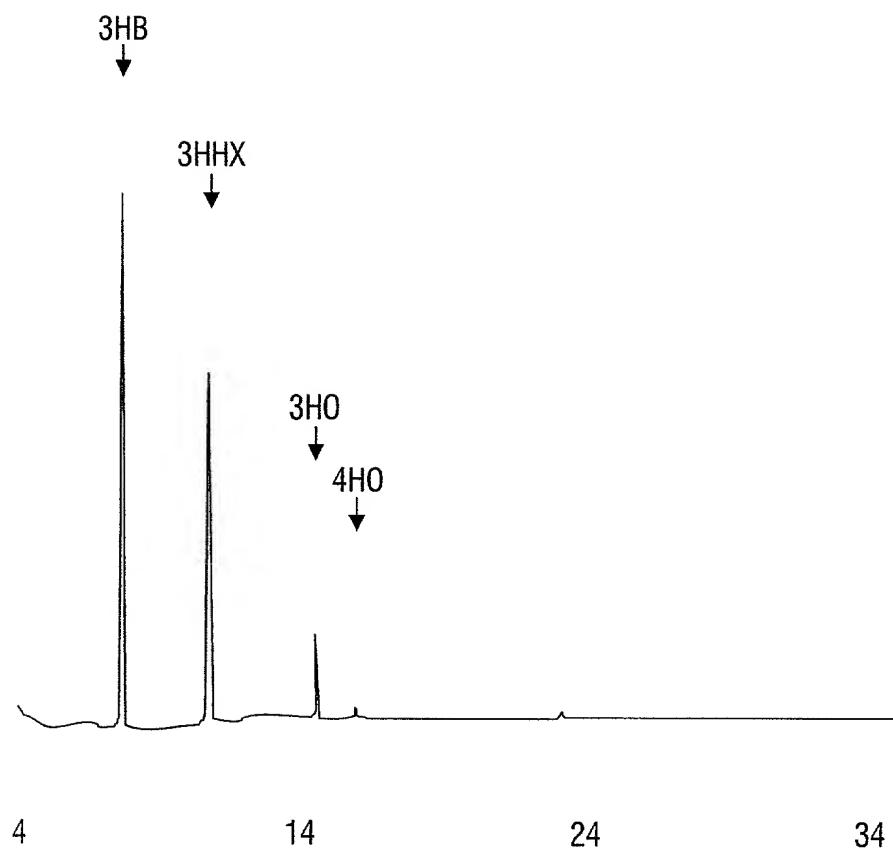
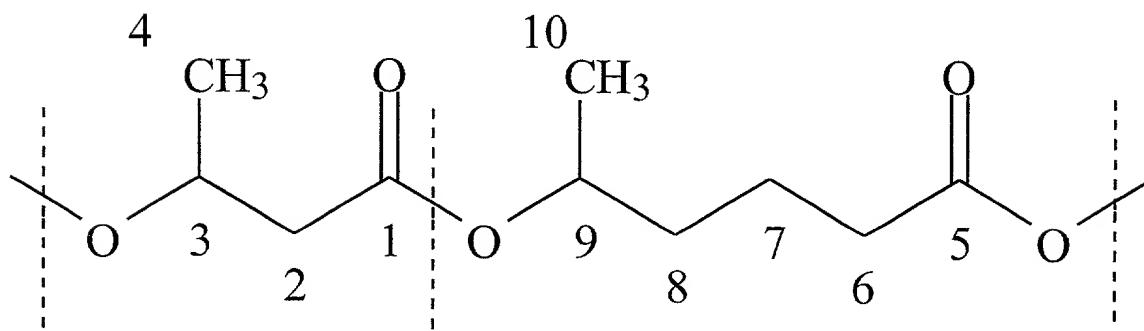


FIG. 8



3HB                    5HHx

FIG. 9

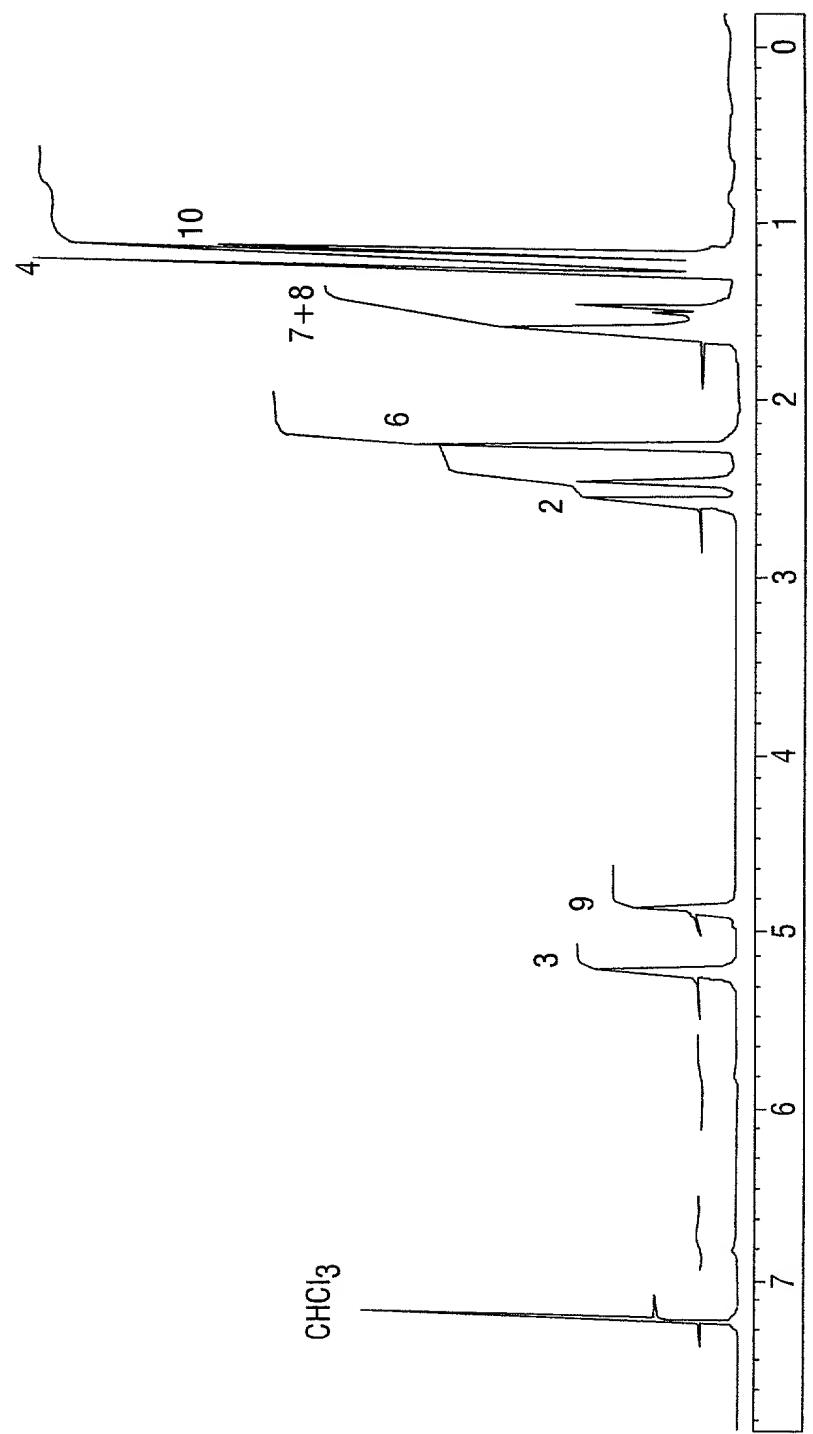


FIG. 10

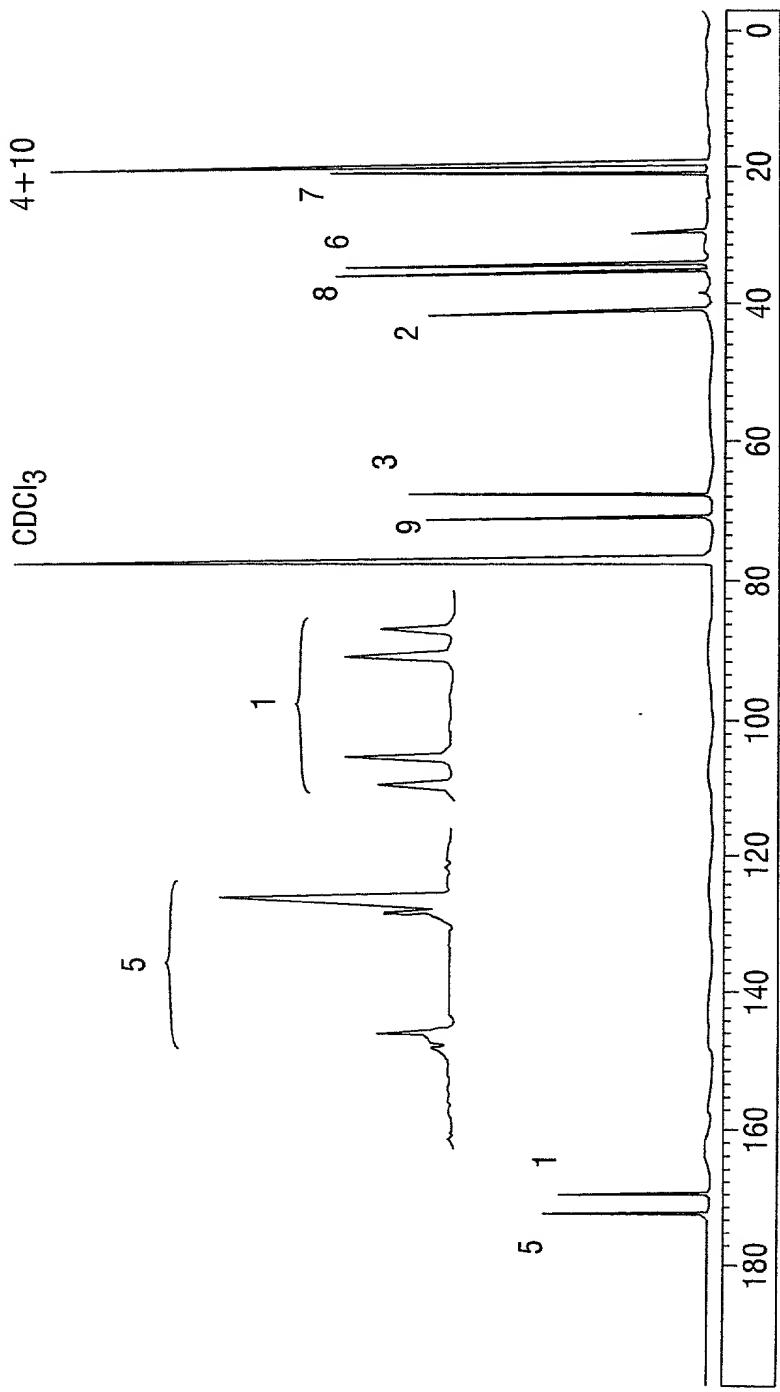


FIG. 11

4000 3500 3000 2500 2000 1500 1000 500

ppm

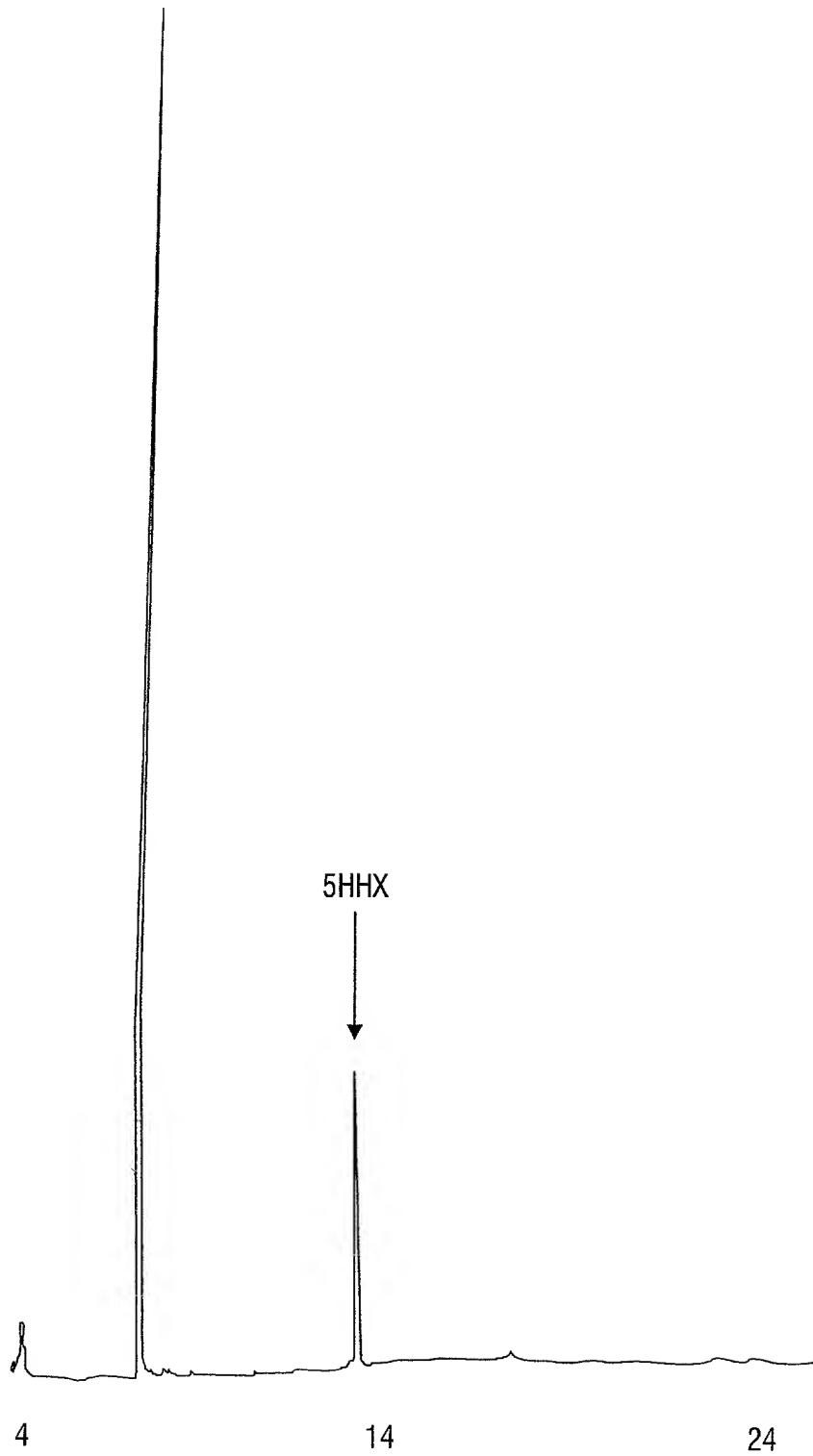


FIG. 12

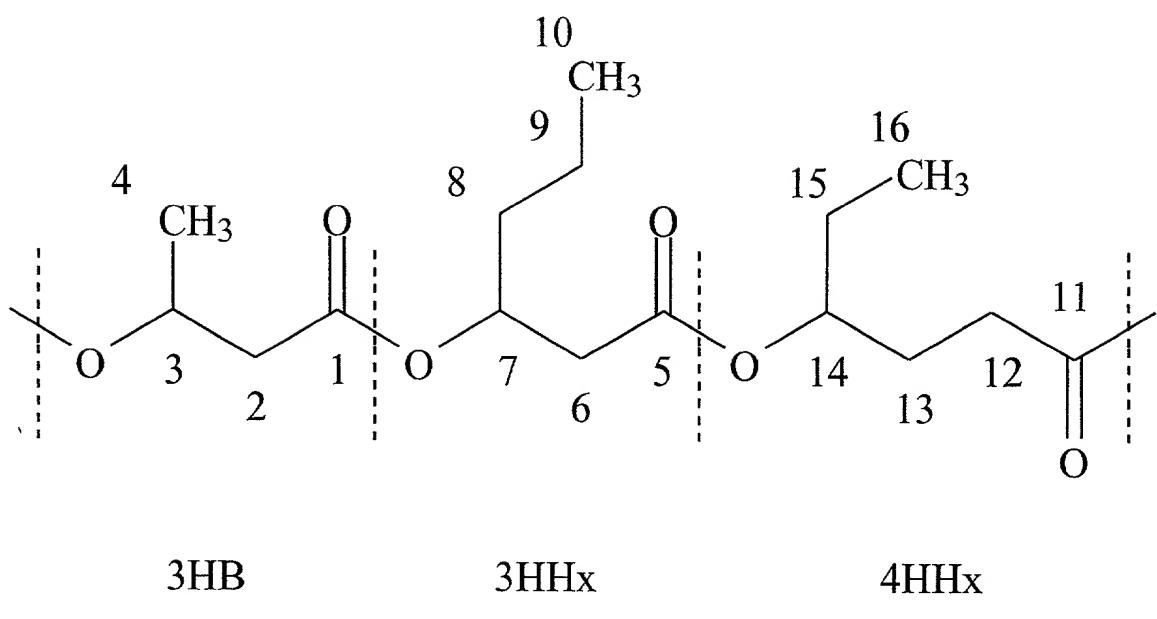


FIG. 13

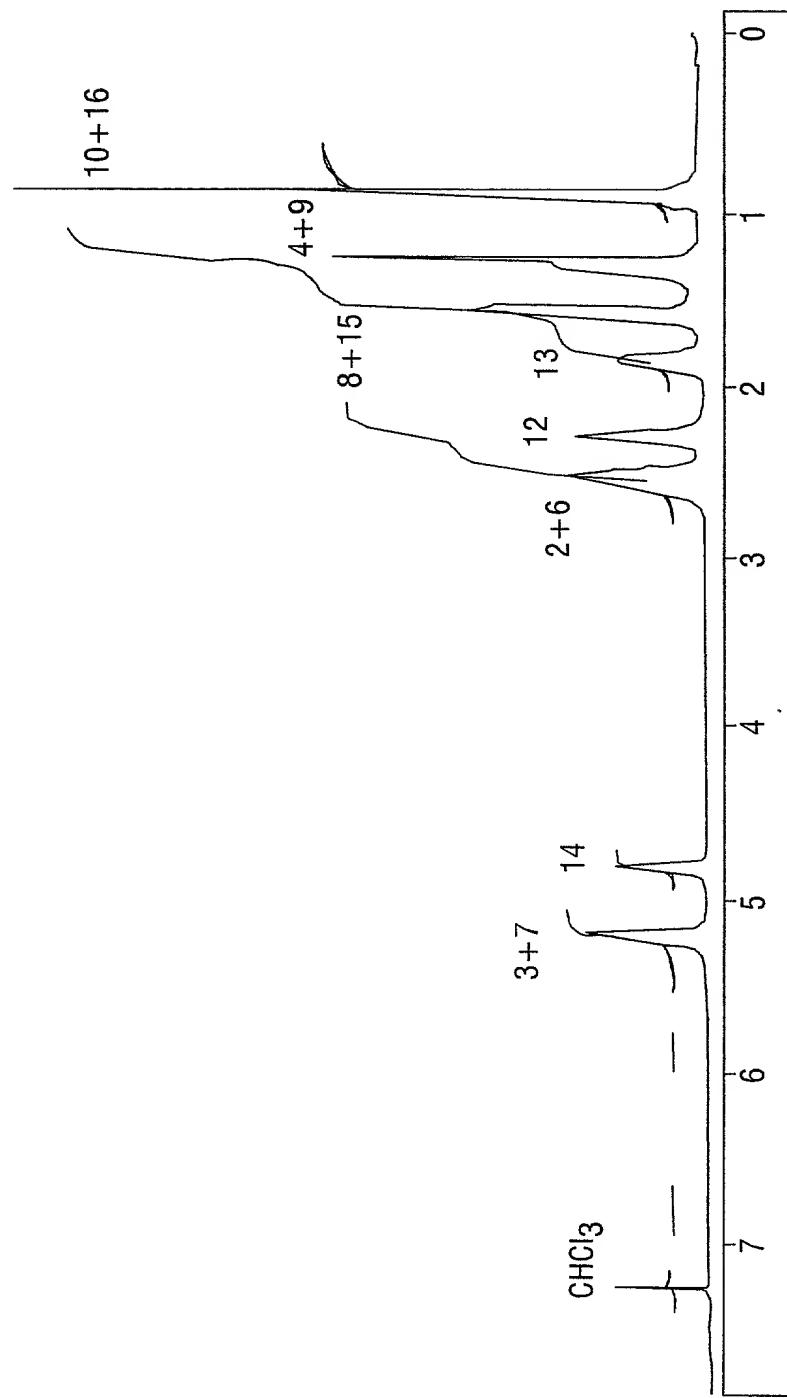


FIG. 14

180 160 140 120 100 80 60 40 20 0

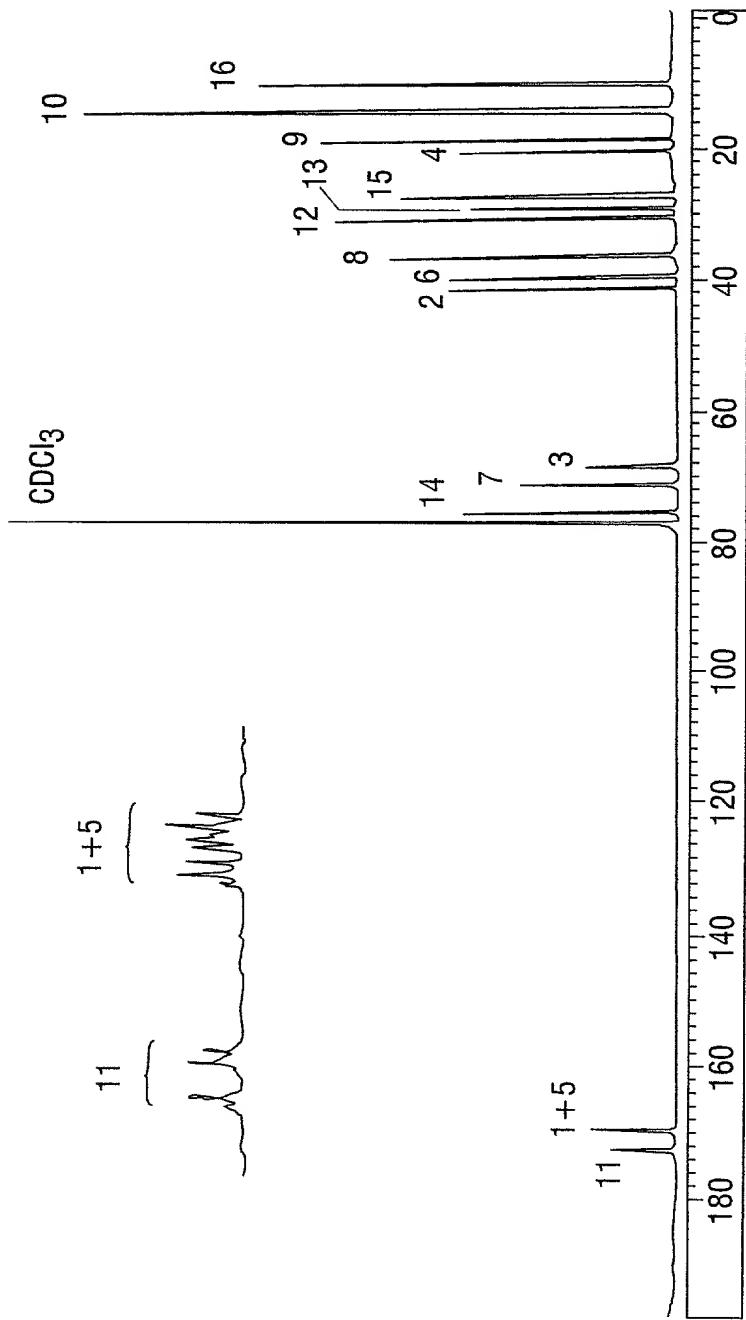


FIG. 15

FIG. 16

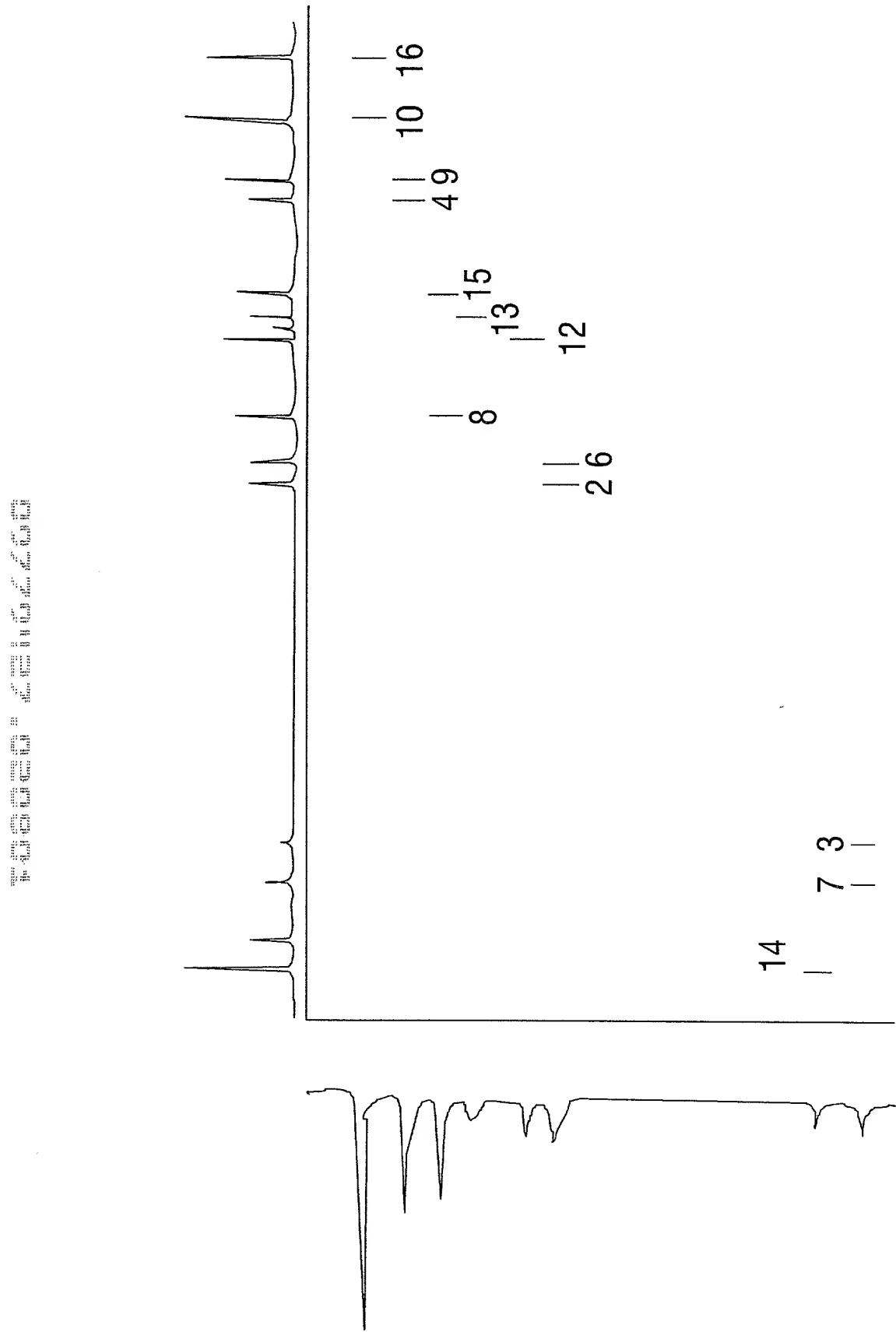
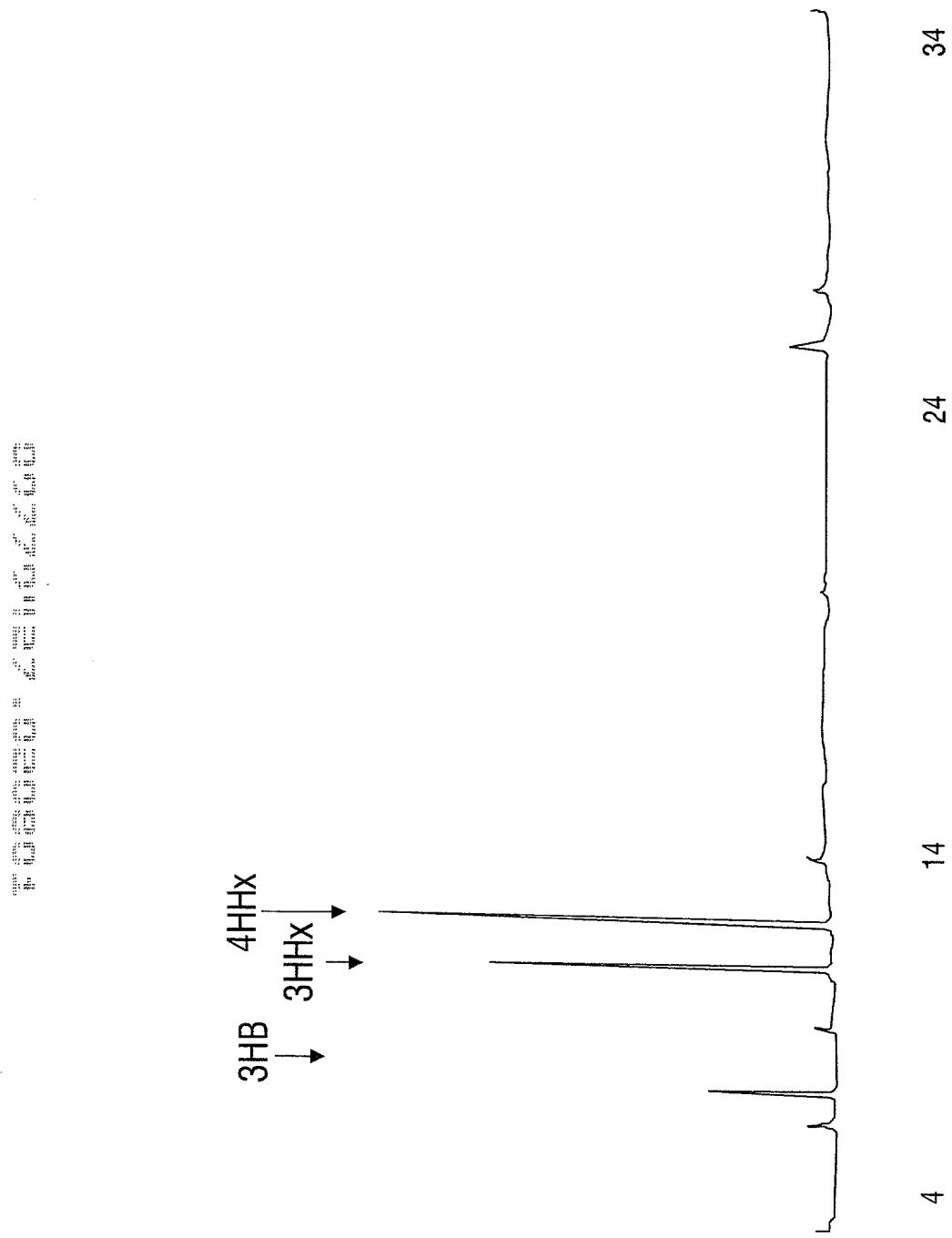


FIG. 17



34

24

14

4